

Remarks

Claims 1, 9, 10, 25, 26, 33, 34, 56, 77, 96 and 97 are pending. Claims 1, 25, 26, and 56 were amended. Support for these amendments can be found throughout the specification. For example, support for amendments to claim 1, can be found in claim 15 of the original specification as filed. Support for amendments to claim 25 can be found, for example, in claim 39 of the original specification as filed. Support for amendments to claim 26 can be found, for example, in claim 39 of the original specification as filed. Support for amendments to claim 56 can be found, for example, in claims 54 and 56 of the original specification as filed. No new matter has been introduced by virtue of these amendments and entry is respectfully requested.

All amendments herein are made without prejudice or disclaimer as to all deleted subject matter. Applicants specifically reserve the right to pursue all deleted subject matter in one or more divisional and/or continuation applications.

Claim Rejections under 35 U.S.C. § 102 & 103

Claims 1, 9, 10, 25, 26, 33, 34, 77, 96 and 97 were rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Konno *et al.* (JP 11-240998), for rationale recited in paragraph 7 of the Office Action dated March 26, 2009.

Applicants respectfully traverse. However, in order to compact and expedite prosecution and without conceding the validity of the Examiner's rejection, the Applicants have amended claim 1. As amended, this claim relates, in part, to:

[A] composition for a polymer solid electrolyte comprising a copolymer having repeating units represented by Formula (I), repeating units represented by Formula (II) and an electrolyte salt, wherein the copolymer having the repeating units represented by the Formula (I) and the Formula (II) is a copolymer having an arrangement of block chains in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chain B1 has the repeating unit represented by the Formula (II), the block chain B2 has the repeating unit represented by the Formula (II) which may be the same

or different from B1; the block chain C1 has a repeating unit represented by the Formula (III), the block chain C2 has a repeating unit represented by the Formula (III) which may be the same or different from C1.

Support for this amendment can be found in original claim 15. Konno *et al.*, do not disclose a composition for a copolymer having repeating units represented by Formula (I), repeating units represented by Formula (II) and an electrolyte salt, wherein the copolymer having the repeating units represented by the Formula (I) and the Formula (II) is a copolymer having an arrangement of block chains in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chain B1 has the repeating unit represented by the Formula (II), the block chain B2 has the repeating unit represented by the Formula (II) which may be the same or different from B1; the block chain C1 has a repeating unit represented by the Formula (III), the block chain C2 has a repeating unit represented by the Formula (III) which may be the same or different from C1. Thus, Konno *et al.*, do not disclose each and every limitation of claim 1 and Konno *et al.*, therefore cannot anticipate this claim.

In conjunction with the above, Konno *et al.*, does not render the instant invention obvious. As described in Examples 7-13, 15-18, solid electrolytes using compositions for a polymer solid electrolyte with this type of structural organization, show excellent ionic conductivity. See, for example, Examples 7-13, 15-18, Tables 1 and 2, which show ionic conductivity of $1 \times 10^{-4} - 7 \times 10^{-4}$ S/cm. By selecting the structure or organization in which the arrangement of block chains is in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chains B1 and B2 have the repeating unit represented by the Formula (II); the block chains C1 and C2 have the repeating unit represented by the Formula (III), compositions for a polymer solid electrolyte of the present invention can be provided to obtain a solid electrolyte which has excellent ionic conductivity. Konno *et al.* do not teach or suggest such excellent effects. Therefore, claim 1 is not only not anticipated by Konno *et al.*, but is also unobvious. Claims 9 and 10 ultimately depend from claim 1 and as such, include all the limitations of claim 1. Thus these claims are not anticipated nor are obvious in view of Konno *et al.*

Amended claims 25 and 26 relate to:

polymer solid electrolytes comprising a copolymer having repeating units represented by Formula (I), repeating units represented by Formula (II) and an electrolyte salt, wherein the copolymer having the repeating units represented by the Formula (I) and the Formula (II) is a copolymer having an arrangement of block chains in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chain B1 has the repeating unit represented by the Formula (II), the block chain B2 has the repeating unit represented by the Formula (II) which may be the same or different from B1; the block chain C1 has a repeating unit represented by the Formula (III), the block chain C2 has a repeating unit represented by the Formula (III) which may be the same or different from C1.

Support for these amendments can be found in original claim 39.

As described in Examples 7-13, 15-18, polymer solid electrolytes with this type of structural arrangement show excellent ionic conductivity. See, for example, Examples 7-13, 15-18, Table 1 and Table 2, which show ionic conductivity of $1 \times 10^{-4} - 7 \times 10^{-4}$ S/cm. By selecting the structural organization in which the arrangement of block chains is in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chains B1 and B2 have the repeating unit represented by the Formula (II); the block chains C1 and C2 have the repeating unit represented by the Formula (III), polymer solid electrolytes which have excellent ionic conductivity can be provided. Konno *et al.* do not teach each and every claim limitation nor teach or suggest polymer electrolytes with such excellent effects. Therefore, the inventions of claims 25 and 26 are neither anticipated nor rendered obvious by Konno *et al.* Furthermore, since claims 33, 34, 96 and 97 are dependent on claim 25 or 26, these claims are neither anticipated nor rendered by Konno *et al.*

Claim 77 is directed in part to a copolymer having an arrangement of block chains in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chain B1 has the repeating unit represented by the Formula (II), the block chain B2 has the repeating unit represented by the Formula (II) which may be the same or different from B1; the block chain C1 has a repeating unit represented by the Formula (III), the block chain

C2 has a repeating unit represented by the Formula (III) which may be the same or different from C1.

As described in Examples 7-13, 15-18, solid electrolytes using copolymers with these polymer structures, the solid electrolytes show excellent ionic conductivity. For example, Examples 7-13, 15-18, Tables 1 and 2, have an ionic conductivity of $1 \times 10^{-4} - 7 \times 10^{-4}$ S/cm. By selecting the structural organization in which the arrangement of block chains is in the order of B1, C1, A, C2, and B2, wherein the block chain A has the repeating unit represented by the Formula (I); the block chains B1 and B2 have the repeating unit represented by the Formula (II); the block chains C1 and C2 have the repeating unit represented by the Formula (III), the copolymers of the present invention can be provided to obtain a solid electrolyte which is excellent in ionic conductivity. Konno *et al.* do not teach or suggest such solid electrolytes having such excellent effects. Therefore, the invention of claim 77 is not only not anticipated but it is also unobvious over Konno *et al.*

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the instant rejections.

Claim 56 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Konno *et al.* (JP 11-240998) in view of Nakanishi *et al.* (U.S. 6,096,234).

Applicants respectfully traverse. However, to compact and expedite prosecution, Applicants have amended claim 56 to recite “[a] polymer solid electrolyte battery comprising: a solid electrolyte made into a film using the composition for a polymer solid electrolyte according to claim 1; and an electrode which comprises...”. Support for this amendment can be found in original claims 54 and 56. Konno *et al.* in view of Nakanishi *et al.*, fail to teach or suggest a polymer solid battery comprising the solid electrolytes as taught by Applicants. Furthermore, the cited references fail to provide any motivation to combine the references and arrive at the instant invention. Even assuming *in arguendo*, that there was a motivation to combine the two, one of ordinary skill in the art would still not arrive at the instant invention.

In view thereof, Applicant respectfully requests reconsideration and withdrawal of the instant rejection.

CONCLUSION

In view of the foregoing, reconsideration and withdrawal of all rejections and allowance of the application is respectfully solicited.

If there are any remaining issues or the Examiner believes that a telephone conversation with the undersigned would be helpful in expediting prosecution of this application, the Examiner is invited to call the undersigned at telephone number shown below.

This response is being timely filed within the shortened statutory period and as such, Applicants believe no fees are due. Although, Applicants believe that no extensions of time are required with submission of this paper, Applicants request that this submission also be considered as a petition for any further extensions of time if necessary. The Commissioner for Patents and Trademarks is hereby authorized to charge the amount due for any retroactive extensions of time and any deficiency in any fees due with the filing of this paper or credit any overpayment in any fees paid on the filing or during prosecution of this application to Deposit Account No. 04-0100.

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